

Ouachita River Lock and Dam No. 8
Ouachita River at River Mile 282.8, 5 mi.
southeast of Calion
Calion Vicinity
Calhoun County
Arkansas

HAER No. AR-1

HAER
ARK,
7-CAL.V,
1-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Southeast Region
Department of the Interior
Atlanta, Georgia 30303

HISTORIC AMERICAN ENGINEERING RECORD

Ouachita River Lock and Dam No. 8

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7-CAL.V.

1-

Location: Approximately 5 miles southeast of Calion, Arizona,
(Calhoun County) on the Ouachita River at river mile
282.8
Calion, Calhoun County, Arkansas

UTM: 15.550120.3684420
15.550180.3684750
15.550060.3684510
15.550250.3684640

Quad: Harrell Blake

Date of Construction: 1907-1916

Present Owner: U. S. Army Corps of Engineers
Vicksburg District
P. O. Box 60
Vicksburg, Mississippi 39180

Present Use: Operational lock and dam

Significance: The Ouachita River Lock and Dam No. 8 is one of the
oldest remaining locks and dams in the State of
Arkansas. It represents a vital segment in the
earliest attempt by the U. S. Army Corps of Engineers
to control a river system in Arkansas. The overall
lock and dam system portrays part of an early 20th
century network of rivers and canals linking together
much of the eastern U. S. From an engineering
perspective, the property is unique by virtue of its
movable wickets.

Source of Information: Archaeology and Paleogeography of the Upper Felsenthal
Region: Cultural Resources Investigations in the
Calion Navigation Pool, South-Central Arkansas
(Draft Report) by Richard A. Weinstein and David B.
Kelley (1983), prepared for Vicksburg District,
U. S. Army Corps of Engineers.

Recorders: Kate H. Yarbrough and Richard C. Beavers, March 1984

Transmitted by: Jean P. Yearby, HAER, 1985

OUACHITA RIVER LOCK AND DAM NO. 8

Lock and Dam No. 8, one of the oldest remaining locks and dams in the State of Arkansas, represents a vital segment in the earliest attempt by the U. S. Army Corps of Engineers to control a river system in Arkansas. The lock and dam is one of a series of four locks and dams located on the Ouachita River between Camden, Arkansas, and Jonesville, Louisiana. The other three locks and dams have either been removed or are in the process of removal. The construction of the lock and dam had two basic purposes. It served to open this section of Arkansas to larger commercial markets to the south and, when combined with the remainder of the lock and dam system, it served as a measure of flood control. When the lock system was completed, the Ouachita River served as an important transportation route for the shipment of commercial goods such as cotton, grain, and lumber. This overall system represented part of an early 20th century network of rivers and canals linking together much of the eastern United States.

This site is located on the Ouachita River at river mile 282.8. It consists of three integrated units: the lock, the dam, and several support buildings located atop an artificially constructed earth mound. The lock is a steel and concrete structure measuring 380 by 55 feet with a depth of 24 feet. Two movable, steel mitring gates are located at each end of the lock allowing for entrance of river traffic. Today the action of the mitring gates is controlled by electric motors. The original manual powered mechanical system remains functional, however, and serves as a backup in case of power failure or malfunction of the electric motors.

The dam is composed of several sections including a navigable pass (incorporating 34 chanoine wickets), a weir (12 chanoine wickets), and a drift pass (10 chanoine wickets). The chanoine wickets are movable wooden objects which can be raised and lowered to adjust water level upstream of the dam. The downstream end of the dam structure has been stabilized by a large quantity of stone riprap.

The earthen mound measures approximately 480 by 400 feet and is over 10 feet high. Today there are three main structures atop the earthen mound: the lockmaster's office and two storage and maintenance buildings. Also atop the mound is a small radio transmission shed. In the past there were a number of residential buildings located near the mound and several families lived in the compound. Children were shuttled to school every day by boat across the Ouachita River where a bus took them to local schools. Today the compound has no full-time residents and is operated by Corps of Engineers shift workers.

A review of the Chief of Engineers reports between 1908 and 1916 (U. S. Army Corps of Engineers 1908, 1909, 1910, 1911, 1912, 1913, 1914, 1915, 1916)

provided a detailed account of the progress of construction at the site. The following information was compiled from those reports:

March 2, 1907	River and Harbor Act of this date authorizes construction of Lock No. 8.
October 1907	Corps advertises for construction bids.
October 19, 1907	One bid received for \$488,713.32; rejected as too excessive and decision made to construct using hired labor.
December 1907	Materials brought to site and mound construction begun.
June 30, 1908	Mound completed.
June 30, 1909	Most buildings atop mound except lockmaster's house and cement storehouse completed. Lock excavation with a block cofferdam almost completed.
June 30, 1910	Lock 80% complete.
June 30, 1911	Lock 88% complete, dam 51% complete.
December 14, 1911	Work halted due to high water.
June 30, 1912	Lock 92% complete needing only erection of gates and transfer of some back dirt; dam 98% complete needing only maneuvering boat.
September 1912	Lock and dam completed and tested.
October 1, 1912	Lock and dam considered operational.
June 30, 1913	Only lockmaster's house to be built.
June 30, 1914	Lockmaster's house to be built when funds become available.
March 20, 1916	Construction of lockmaster's house begun.
May 13, 1916	Lockmaster's house completed; project finished.

BIBLIOGRAPHY

Mills, Cary B., 1978, Of Men and Rivers: The Story of the Vicksburg District. U. S. Army District, Vicksburg.

U. S. Army Corps of Engineers, Office of the Chief of Engineers, 1908-1916, Annual Reports of the Chief of Engineers. U. S. Government Printing Office, Washington, D.C.

Weinstein, Richard A. and David B. Kelley, 1983, Archaeology and Paleogeography of the Upper Felsenthal Region: Cultural Resources Investigations in the Calion Navigation Pool, South-Central Arkansas (Draft Report). Prepared for the U. S. Army Corps of Engineers, Vicksburg District.

PHOTOGRAPHIC NARRATIVE
OUACHITA RIVER LOCK AND DAM NO. 8

Two separate yet interrelated elements are visible in the view camera photographs of the existing lock and dam: the physical structure of Lock and Dam No. 8 and the function of this lock and dam system.

1. Overview of Calion Lock and Dam No. 8, taken from the center of the Ouachita River downstream from the structure. From left to right in the photo can be seen: the right descending bankline; the drift pass; the weir; the navigable pass of the dam; the downstream lock structure, with navigation piles extending downstream; and the elevated earthen mound, atop which is located the lockmaster's office and the various maintenance sheds.
2. Dam section of structure, taken from right descending bank. Note the following from left to right in photo: the wickets in each section of the dam can be seen extending above the impounding waterline above the dam; three monolithic concrete buttresses are present which separate the three sections of the dam; the barge-mounted crane used to raise and lower the wickets can be seen in the center of the picture moored on upstream side of dam; and the wall of the lock structure, where it intersects the dam is on the far right.
3. In this photo can be seen the three sections of the dam, reading from left to right in the photo are the drift pass (10 chanoine wickets), the weir (12 chanoine wickets) and the navigable pass (34 chanoine wickets). Also note the elevated toe of the downstream dam section which is progressively stepped down toward the navigable pass. This allows for the separate section of the dam function.
4. Closeup of drift pass section and two dam buttresses, taken from right descending bank. Note raised elevation of the dam toe in this section.
5. Drift pass section showing wickets and prop rods in place. Photo taken from right descending bank, normal to stream flow.
6. Closeup of wickets and rods in drift pass section.
7. Barge-mounted crane, moored upstream from dam, used to raise and lower wickets to control pool level.
8. Model of wicket and prop rod, built by lockmaster as a training device for new personnel. As shown, the wicket is in a half-raised position.
9. Downstream end of lock, photo taken from the left descending bank. Note the wooden piling extending downstream from lock mount (seen in a closed position) which functions as a navigation guide for boats entering or leaving the lock. The wing wall of the lock mount extends into the levee on the left descending bank, serving to stabilize the structure.

10. View of downstream lock gates, photo taken from small boat in process of entering lock. Note the lockmaster's office on raised earthen mound in upper right of photo and navigation pass section of the dam on the left side of lock.
11. View of downstream mitered lock gates, in closed position. Note mooring pins located in lock wall, capstan on wing wall of lock and ladder constructed by extending reinforcing steel across inset formed in lock wall.
12. View of downstream mitered lock gate, in closed position. Note the dual control system used to operate gates: (1) electric motor and control panel on left side of photo, and (2) mechanical wheel and worm gear as manual backup.
13. Interior of lock with gate closed (water level equals the downstream pool level in this configuration). Note the mooring bits along and vertically spaced up the wall and the steel rod ladders.
14. View of mitered gates on upstream end of lock, gates closed. Note capstans in row along side of lock and what at one time was a mule track running parallel to lock, seen in the right side of photo, used to tow vessels through lock.
15. Closeup of upstream lock gate in closed position. The gate control center can be seen in the background as well as the barge-mounted crane. Note difference in water levels between upstream pool and lock or downstream pool.
16. Upstream side of mitered gate in closed position. Arm extending from side of lock transmits force to open or close gate and is powered by an electric motor, or can be manually operated.
17. View of artificially constructed, earthen mound with lockmaster's office and other support buildings. Note downstream end of lock structure in far foreground. Photo taken from right descending bankline of Ouachita River.
18. View of mound and structures from drift pass buttress, upstream of dam.
19. Front elevation of lockmaster's office. This structure was once a residence for families stationed at the lock.
20. South elevation of lockmaster's office.
21. Rear or east elevation of lockmaster's office. Note entrance to storm cellar next to back steps.
22. Maintenance shed behind lockmaster's office. Only the lockmaster's office and the small shed seen in this photograph date from the early period of the lock and dam. One other maintenance shed is located on the mound, but is of recent construction and has no architectural or historic merit.